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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,954	06/08/2005	Gunnar Hultquist	1026-0002WOUS	5447
49698 7590 04/21/2008 MICHAUD-DUFFY GROUP LLP 306 INDUSTRIAL PARK ROAD SUITE 206 MIDDLETOWN, CT 06457				
EXAMINER PALABRICA, RICARDO J				
ART UNIT 3663		PAPER NUMBER		
MAIL DATE 04/21/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/537,954

**Applicant(s)**

HULTQUIST ET AL.

**Examiner**

Rick Palabrica

**Art Unit**

3663

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15, 17, 18, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15, 17, 18, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's 2/4/08 Amendment, which directly amended claims 15 and 25, canceled claims 16 and 23, and traversed the rejection of claims in the 11/2/07 Office action, is acknowledged.

Applicant's arguments in regard to the rejections based on the applied art have been fully considered but they are not persuasive.

### ***Response to Arguments***

2. Applicant traversed applied art, Ferrari '524, on the grounds that: a) "for purposes of the present invention, carbon monoxide is selected as the gas that is additional to the fill gas, whereas Ferrari '524 utilizes oxygen or carbon dioxide as well as carbon monoxide;" b) "the cladding tube in Ferrari '524 is a metallic tube with no oxide layer on the surfaces and that the added gas will be effective to form an oxide layer on the inner surface of the metallic tube (as in claim 1 of Ferrari '524); c) "[t]he amount of gas added to the fill gas will thus not remain according to the teaching of Ferrari '524 but the added gas will be consumed when forming the oxide layer on the inner surface of the cladding tube; consequently, the amount of added gas will decrease after an initial use of the fuel rod." The examiner disagrees.

As to argument a), applicant himself admits that Ferrari '524 teaches carbon monoxide as suitable gas to add to the fill gas, as in applicant's case. It is immaterial that Ferrari '524 emphasizes other gases, e.g., carbon dioxide or oxygen, for as long as

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they teach carbon monoxide as an equally suitable alternative to any preferred gas, which is the case in said reference. Note in this regard MPEP 2123 (Rejection Over Prior Art's Broad Disclosure Instead of Preferred Embodiments), which states:

**"PATENTS ARE RELEVANT AS PRIOR ART FOR ALL THEY CONTAIN**

The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).

A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Upsher-Smith Labs. v. Pamlab, LLC, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005)(reference disclosing optional inclusion of a particular component teaches compositions that both do and do not contain that component); Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed."

As to argument b), the cladding tube in Ferrari '524 is made of a zirconium alloy, such as Zircaloy (see col. 2, lines 37+). During and after manufacture of this tube, which is clearly BEFORE the introduction of fill gas, zirconium oxide is inherently formed on the inner tube surface because of oxidation from exposure to the environment. Note that this pre-oxidation cannot be prevented because of the inherent presence of oxygen in the environment.

Also, applicant has not defined the degree of "pre-oxidation" of the inner surface of the tube and, absent such definition, the examiner interprets the claim broadly and reads it on any and all degrees of pre-oxidation, including the inherent pre-oxidation in said cladding tube of Ferrari '524.

As to argument c), the amount of carbon monoxide in applicant's case also does not remain constant because some amount of carbon monoxide is inherently lost due to unavoidable leakage or absorption of this gas by the cladding wall. Thus, the property that applicant cites against Ferrari '524 is also exhibited by his own apparatus.

Additionally, the above-cited feature upon which the applicant relies (i.e., amount of carbon monoxide remaining constant) is not recited in rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, if said unrecited features are considered by the applicant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

3. Applicant further argues in his traverse of Ferrari '524 that "in view of the amendment to claims 15 and 25 in which a protective layer is included on the inner surface of the cladding, it is clear that the carbon monoxide of the fill gas does not have the purpose of forming a protective layer, but instead the purpose of being absorbed by the zirconium material to prevent absorption of hydrogen in the case of a primary defect." The examiner disagrees.

A carbon monoxide molecule, when introduced with the fill gas inside the tube cladding in Ferrari '524, neither knows nor cares why it was introduced inside the cladding. This carbon monoxide will react in the same way and in the same manner as any carbon monoxide in applicant's apparatus.

Note that the cladding tube in Ferrari '524 is pre-oxidized just like the applicant's apparatus. Since the structure and manner of operation of the reference is the same as that recited in the claims, the references must each inherently function in the same manner to produce the same results as applicant's situation. As to limitations which are considered to be inherent in a reference, note the case law of In re Ludtke, 169 USPQ 563, In re Swinehart, 169 USPQ 226, In re Fitzgerald, 205 USPQ 594, In re Best et al., 195 USPQ 430, and In re Brown, 173 USPQ 685, 688.

4. Applicant also indicates that when developing the present invention they have performed experiments with different amounts of carbon monoxide. Applicant further states:

*"[a]ccording to such experiments, carbon monoxide does not seem to be a substance which would form an oxide layer on a metallic surface."*

The examiner disagrees.

First, this statement is nothing more than a conjecture or a guess, as evidenced by the term, "does not seem," which implies lack of certainty or a factual basis.

Second, whether or not carbon monoxide forms an oxide is immaterial because zirconium oxide is inherently formed in the inner cladding of Ferrari '524 because of exposure to the atmosphere, as discussed earlier.

5. Applicant traversed applied art, Ferrari '894, on the ground that the reference "does not suggest the carbon monoxide proportion defined in claims 15 and 25 of the present application." The examiner disagrees.

Ferrari '894 has NOT been applied for the teaching on the carbon monoxide proportion but rather for the teaching on the claimed fill gas pressure of at least 2 bars. Applicant's argument is misplaced because the applicant has not shown that the reference does not teach what the examiner has stated it teaches, nor, has applicant shown that the examiner's reasoning for and manner of combining the teaching of the reference with the other reference(s) is improper or invalid.

6. Applicant traversed applied art, Adamson and King on the ground that either one "teaches away from the present invention and the addition of carbon monoxide to the fill gas." The examiner disagrees.

First, the claims are rejected based on Ferrari '524, in combination with Ferrari '894 and either Adamson or King. It has been well settled that one cannot show nonobviousness by attacking references individually where the rejections are based on the combination of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800F.2d 1091, 231 USPQ (Fed. Cir. 1986). Thus, attacking Adamson and King is improper.

Second, applicant is misrepresenting the teachings that the examiner applied for either Adamson or King.

As stated in section 10 of the 11/2/07 Office action, the combination of Ferrari '524 and Ferrari '894 teaches the advantages having carbon monoxide in the fill gas, whereas Adamson or King teaches the disadvantages of having carbon monoxide in the

fill gas. These references demonstrate that adding carbon monoxide in the fill gas has BOTH advantages AND disadvantages.

The primary and secondary references teach that it is necessary to determine an optimum proportion of carbon monoxide in the fill gas such that the advantages are maximized (as per the Ferrari '524 - Ferrari '894 combination) and the disadvantages are minimized (as per Adamson or King).

Clearly, Applicant's argument against Adamson and King are misplaced because the applicant has not shown that the references do not teach what the examiner has stated they teach, nor, has applicant shown that the examiner's reasoning for and manner of combining the teachings of references is improper or invalid.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 15, 17, 18, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari (U.S. 4,609,524) in view of Ferrari (U.S. 3,677,894) in combination with either Adamson et al. (U.S. 5,437,747) or King (U.S. 5,329,566).

The reasons are the same as those stated in section 10 of the 11/2/07 Office action, as further clarified in sections 2-6 above, which reasons are herein incorporated.



***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:00-4:30, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

April 15, 2008

/Rick Palabrica/  
Primary Examiner, Art Unit 3663